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## Blockchain Security Training

**Duration: 3 Days    Course Code: U67946G**

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### Overview:

This dynamic Blockchain Security course covers all known aspects of Blockchain security that exist in the Blockchain environment today. This course provides a detailed overview of all Blockchain security issues, including threats, risk mitigation, node security integrity, confidentiality, best security practices, advanced Blockchain security and more. The in-depth lab sessions will provide the student with practical, real world tools for not only recognizing security threats, but mitigation and prevention as well.

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### Target Audience:

Security for Blockchain Professionals is designed for:

Existing architects, software developers, system and network administrators who are responsible for implementing, identifying, and managing security on their Blockchain network. Also, those who are responsible for, and are required to mitigate, recognize, and resolve Blockchain security problems. Students will participate in security labs which will go in-depth into security best practices, known attack vectors, threat identification, response techniques, and much more.

Due to the in-depth focus on technical cyber-security methods, and the broad scope of this course, those with current cyber-security knowledge, Blockchain architecture, and/or experienced programmers will benefit the most from this course, including: Blockchain ArchitectsBlockchain DevelopersApplication DevelopersBlockchain System AdministratorsNetwork Security ArchitectsCyber Security ExpertsIT Professionals w/cyber security experience

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### Objectives:

- Those who attend the Security for Blockchain Professionals course and pass the exam certification will have a demonstrated knowledge of:
  - Identifying and differentiating between security threats and attacks on a Blockchain network.
  - Blockchain security methods, best practices, risk mitigation, and more.
  - All known (to date) cyber-attack vectors on the Blockchain.
  - Performing Blockchain network security risk analysis.
  - A complete understanding of Blockchains inherent security features and risks.
  - An excellent knowledge of best security practices for Blockchain System/Network Administrators.
  - Demonstrating appropriate Blockchain data safeguarding techniques.
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### Testing and Certification

Certified Blockchain Security Professional (CBSP)

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## Content:

### Day 1: Blockchain Security Fundamentals

#### Module 1: Fundamental Blockchain Security

- Cryptography for the Blockchain
- A Brief Introduction to Blockchain
- Blockchain Security Assumptions
- Limitations of Basic Blockchain Security

#### Module 2: Consensus in the Blockchain

- Blockchain Consensus and Byzantine Generals
- Introduction to Blockchain Consensus Security
- Proof of Work
- Proof of Stake
- Other Blockchain Consensus Algorithms

- Advanced Cryptographic Solutions
- Multiparty Signatures
- Zero-Knowledge Proofs
- Stealth Addresses
- Ring Signatures
- Confidential Transactions

#### Module 3: Advanced Blockchain Security Mechanisms

- Architectural Security Measures
- Permissioned Blockchains
- Checkpointing

- Advanced Cryptographic Solutions
- Multiparty Signatures
- Zero-Knowledge Proofs
- Stealth Addresses
- Ring Signatures
- Confidential Transactions

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#### Module 4: Smart Contract Security

- Introduction to Smart Contracts
- Smart Contract Security Considerations
- Smart Contract Code Auditing

### Day 2: Blockchain Security Implementations

#### Module 5: Blockchain Risk Assessment

- Blockchain Risk Considerations
- Regulatory Requirements
- Blockchain Architectural Design

#### Module 6: Basic Blockchain Security

- User Security
- Node Security
- Network Security

#### Module 7: Blockchain for Business

- Introduction to Ethereum Security
- Introduction to Hyperledger Security
- Introduction to Corda Security

### Module 8: Securely Implementing Business Blockchains

- Business Operations
- Data Management
- Infrastructure
- Legal and Regulatory Compliance

### Day 3: Known Security Vulnerabilities and Solutions

#### Module 9: Network-Level Vulnerabilities and Attacks

- 51% Attacks
- Denial of Service Attacks
- Eclipse Attacks
- Replay Attacks
- Routing Attacks
- Sybil Attacks

#### Module 10: System-Level Vulnerabilities and Attacks

- The Bitcoin Hack
- The Verge Hack
- The EOS Vulnerability
- The Lisk Vulnerability

#### Module 11: Smart Contract Vulnerabilities and Attacks

- Reentrancy
- Access Control
- Arithmetic
- Unchecked Return Values
- Denial of Service
- Bad Randomness
- Race Conditions
- Timestamp Dependence
- Short Addresses

#### Module 12: Security of Alternative DLT Architectures

- Introduction to DAG-Based DLTs
- Advantages of DAG-Based DLTs
- Limitations of DAG-Based DLTs

## Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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